

10/088,766

PTO 06-6189

CY=JA DATE=19830930 KIND=A
PN=58-165742

NUTRITIVE COMPOSITION FOR INFANT USE
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UNITED STATES PATENT AND TRADEMARK OFFICE
Washington, D.C. August 2006

Translated by: FLS, Inc.

PUBLICATION COUNTRY	(19):	JP
DOCUMENT NUMBER	(11):	58165742
DOCUMENT KIND	(12):	A
	(13):	PUBLISHED UNEXAMINED APPLICATION (Kokai)
PUBLICATION DATE	(43):	19830930
PUBLICATION DATE	(45):	
APPLICATION NUMBER	(21):	57046275
APPLICATION DATE	(22):	19820325
ADDITION TO	(61):	
INTERNATIONAL CLASSIFICATION	(51):	A23J 3/00
DOMESTIC CLASSIFICATION	(52):	
PRIORITY COUNTRY	(33):	
PRIORITY NUMBER	(31):	
PRIORITY DATE	(32):	
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TITLE	(54):	NUTRITIVE COMPOSITION FOR INFANT USE
FOREIGN TITLE	[54A]:	Nyuyojiyo Eiyo Soseibutsu

SPECIFICATION

1. Title

NUTRITIVE COMPOSITION FOR INFANT USE

2. Claims

A nutritive composition for infant use that contains, as a protein source, a nitrogen compound having the following composition, said composition being expressed based on the weight of the total nitrogen compounds that function as the protein source, thereby reducing the ratio of the protein content:

Casein or a salt thereof (in terms of casein protein)	24-32 (% by weight)
Whey powder (in terms of milk serum protein)	30-40
L-isoleucine	2.2-3.0
L-leucine	8.5-11.3
L-methionine	0.3-0.4
L-cysteine	2.4-3.2
L-phenylalanine	2.7-3.7
L-tyrosine	2.7-3.7
L-threonine	3.0-4.0
L-tryptophan	0.5-0.7
L-valine	4.0-5.4
L-alanine	3.9-5.3
L-histidine	1.4-2.0

3. Detailed Description of the Invention

The present invention pertains to a highly digestible nutritive composition for infant use.

More specifically, it pertains to an infant-use nutritive composition that has natural milk protein and amino acids as the protein source and that contains nutrients, such as fats, carbohydrates, minerals, vitamins, etc.

One objective of the present invention is to provide a nutritive composition that contains a protein source that is ideal for therapeutic nutraceutical products for infant patients who are suffering from urea cycle disorders in the liver. Another objective is to provide a nutritive composition suitable for infants who are suffering from nutritional disorders.

Generally speaking, when infants suffer from urea cycle disorders, the ammonia value in blood and in cerebrospinal fluid increases. To decrease this ammonia value, the infants require low-protein food, but they also need to get enough essential amino acids. When infants suffer from nutritional disorders, their ability to degrade protein and to absorb and utilize it decreases; as a result, they fall into an essential amino acid deficient state.

The present invention pertains to a nutritive composition for managing these functional disorders of infants, and it proposes a nutritive composition for infant use that contains, as a protein source, a nitrogen compound having the following composition, said composition being expressed based on the weight of the total nitrogen compounds that function as the protein source, thereby reducing the ratio of the protein content:

Casein or a salt thereof (in terms of casein protein)	24-32 (% by weight)
Whey powder (in terms of milk serum protein)	30-40
L-isoleucine	2.2-3.0
L-leucine	8.5-11.3
L-methionine	0.3-0.4

The aforesaid various types of components are homogeneously mixed and formulated into a powder, thereby yielding an infant-use nutritive composition.

Since the infant-use nutritive composition of the present invention is prepared in the form of a powder, administering it first involves dissolving it in water usually at a concentration of 15 % W/V and then administering it. The route of administration may be either oral or enteral.

By administering the infant-use nutritive composition of the present invention to patients suffering from urea cycle disorders, the ammonia concentration in the blood and cerebrospinal fluid of the infants can be reduced, and, in addition, the infants can receive nutritional support.

Furthermore, the infant-use nutritive composition of the present invention makes it possible for patients whose protein intake is severely restricted, as seen in the case of, for example, renal failure, to receive essential amino acids in a well balanced manner with a small protein intake. Therefore, it can be administered extensively to infants suffering from nutritional disorders.

The following presents a working example of the present invention.

Working Example 1

The substances shown below were homogeneously mixed to prepare a composition.

Casein sodium	2.243 g
Whey powder	3.031 g
L-isoleucine	0.157 g
L-leucine	0.582 g
L-methionine	0.016 g
L-cysteine	0.165 g
L-phenylalanine	0.189 g
L-tyrosine	0.207 g
L-threonine	0.230 g
L-tryptophan	0.037 g
L-valine	0.275 g
L-alanine	0.276 g
L-histidine hydrochloride	0.136 g
MCT oil	16.660 g
Vegetable oil	27.568 g
Lactose	53.540 g
Honey	3.270 g
nicotinic acid amide	6.0 mg
Vitamin B ₂	0.91 mg
Vitamin B ₁₂	7.9 µg
Inositol	12.49 mg
Biotin	0.06 mg
dl-α-tocophenol	6.0 mg
Mixture of Vitamins A and D	6.711 mg
Vitamin K ₁	114 µg
Thiamine hydrochloride (V. B ₁)	0.72 mg
Pyridoxine hydrochloride (V. B ₆)	0.43 mg
Ascorbic acid (V. C)	54.0 mg
Folic acid	0.24 mg
Calcium pantothenate	2.40 mg
Sodium ferrous succinate citrate	80.0 mg
Potassium iodide	0.11 mg
Calcium glycerophosphate	427.3 mg
Calcium carbonate	565.8 mg
Calcium hydroxide	41.4 mg
Calcium chloride dihydrate	33.0 mg
Potassium dihydrogen phosphate	108.3 mg
Dipotassium hydrogen phosphate	231.3 mg
Magnesium chloride hexahydrate	294.0 mg
Sodium chloride	207.9 mg
Trisodium citrate dihydrate	44.1 mg
Powdered lecithin	90.0 mg
Sugar ester	225.0 mg
Monoglyceride	114.0 mg
Copper sulfate pentahydrate	1.552 mg
Zinc chloride	5.13 mg
Manganese acetate tetrahydrate	0.669 mg

Cobalt acetate tetrahydrate

0.211 mg

The obtained infant-use nutritive composition was a product to be used by dissolving it in 40 ° C water at a concentration of 15 % W/V and administering it to infants by the oral or enteral route.